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Psychological Monographs: General and Applied

A Behavioral Census of a State Hospital Population[1]

STANTON P. FJELD
With
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Fergus Falls State Hospital, Minnesota

A SURVEY of the literature reveals no systematic inquiry into the behavioral characteristics of an entire hospital population. Yet this behavior is of concern both to those attempting treatment and to society as a whole. The actions of commitment courts, county welfare boards, relatives, clinicians, and scientists are based at least in part on opinions about the behavior of these patients. These opinions may or may not be accurate. There is urgent need for objective study of the actual behavior of mental hospital populations, so that various therapeutic programs can be better geared to variation in patient abilities and needs.

In the past, scientists in this field have generally limited their investigations to a small segment of those exhibiting behavior pathology. The recently admitted patient has been the subject of most state hospital research. Various generalizations have been made, without adequate research, about the behavior of continued-treatment patients.

This is a report of an objective longitudinal study of the behavioral characteristics of an entire state hospital population. The authors hope that the results of this study may assist hospital personnel in planning therapeutic regimes, and ultimately aid the public in better understanding the behavior of the mentally ill. A further expectation is that the study will be of value in supporting or weakening various hypotheses.

The large amount of data, the number of factors, and the complex interrelations make it imperative that this paper be a "bird's-eye view." It is hoped that further and more detailed analyses of the data will be made.

THE HOSPITAL

Fergus Falls State Hospital is a 2,000-bed mental hospital located on the outskirts of a city of 12,000. Of the 1,086 acres that comprise the hospital grounds, 725 are farmed. Almost none of the 455 authorized positions are vacant. An average of 60 separations occur per year. Approximately 30% of the employees are primarily concerned with patient therapy and ward administration. The others are employed primarily for other purposes, e.g., kitchen, supply, maintenance, engineering, etc. Many of these people also have a great deal of patient contact (for example, about 75 patients are working in the main kitchens).

The budget for the fiscal year 1 July 1954 to 1 July 1955 was $2,044,824. No major construction costs are included in this representative figure.

The hospital has three integrated (team approach) programs treating the following types of patients: recent admissions; regressed, long-term, and recently lobotomized patients; and continent, ambulatory seniles. Other wards in the hopsital are screened periodically to provide patients for the latter two programs.

SUBJECTS

The subjects were the entire resident

[1] We are indebted to Starke R. Hathaway for the original idea; to W. L. Patterson, Superintendent, and J. G. Freeman, Clinical Director, for authorizing and assisting in the project; to John R. Hawkinson for criticizing the manuscript; to Adeline Foss for compiling most of the data; and to the psychiatric aides and nurses who made the ratings.

We are especially indebted to Reuben J. Silver for his assistance in preparing the final form of the manuscript, and to William Schofield, without whose constant criticism, encouragement, and active participation the project would never have been completed.

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population of the Fergus Falls State Hospital. Two surveys were made: one in the first week of April 1951 ($N = 1,932$); and another, two years later, in the third week of May 1953 ($N = 1,925$). Of the patients in the first study, 1,481 were included in the second. Patients absent from the hospital for the whole week for any reason were not included.

The patients are drawn from a predominantly rural area of Minnesota. The largest city has a population of 28,410. (There are five cities with a population of over 10,000 and 26 of over 2,500.) The principal occupation of this portion of the state is agriculture.

Procedure

Data were gathered on a total of twelve behavioral and nine case-history items. The nine case-history items are: Diagnosis, Present Age, Sex, Marital Status, Religious Affiliation, Physically Debilitating Condition, Total Length of Hospitalization, Education, and Age at First Admission.

Eleven of the behavioral items were derived from ratings of the areas on the L-M Fergus Falls Behavior Rating Scale, hereafter referred to as the L-M Scale (2, 3). The twelfth is an average of the ratings on these areas. The eleven areas are: A, Work; B, Eating Behavior; C, Behavior Toward Other Patients; D, Behavior Toward Psychiatric Aides and Nurses; E, Behavior Toward Doctors, Social Workers, and Psychologists; F, Attitude to Electric or Insulin Therapy; G, Participation in Occupational Therapy and Recreational Therapy; H, Attention to Dress and Person; I, Psychomotor Activity; J, Speech; and K, Toilet Behavior.[2]

Both in 1951 and in 1953, each patient was rated independently by two people on the ward (psychiatric aides and/or nurses). If the raters disagreed by three or more points with respect to their ratings of a patient in a given area, the rating on this area was considered invalid. The average of the two ratings for the area was used as the best estimate of the patient's behavior. In addition, the mean for all the areas (a more reliable measure) was computed for each patient. The patient's behavior was rated for the week prior to the date of the rating. Two weeks following the initial notice, all ratings were completed.

[2] The scale is reproduced in its entirety in the Appendix.

This scale does not give information with regard to thought processes, except insofar as inferences can be made.

There are some differences between the data collected in 1951 and in 1953, arising from: (*a*) minor differences in definition; and (*b*) more thorough examination of the patient's record in 1953. No changes in definition or method occurred with respect to Present Age, Age at First Admission, Diagnosis, Sex, Marital Status, and Length of Hospitalization. Age at First Admission and Length of Hospitalization refer to Minnesota State Mental Hospitals. Diagnosis is the latest one made by the hospital.

Religion was determined more accurately in 1953. The differences in definition of educational level and physically debilitating factors will be discussed later.

Some comparisons are made between the hospital population and the population of the State of Minnesota as determined by the United States Census Bureau for the year 1950 (7). The 38 counties in the 1950 admission district of the Fergus Falls State Hospital were used to determine the characteristics of the normal population. The population of these counties was 503,325, of whom 263,787 were males and 239,538 were females. These figures include only age groups over 15, since hospital admissions are rarely below this age. The hospital population is included in the 1950 census figures used in this comparison. Therefore differences found between the census and hospital populations will have maximal interpretive significance.

Since these populations are biased in the direction of rural areas, caution must be used in applying the results of this study to predominantly urban hospital populations. The characteristics of a rural, Midwestern people, many of Scandinavian descent and Lutheran faith, may differ quantitatively from those of other groups. In some instances, a direct comparison between the hospital population and the normal population gives ambiguous results. The authors have reduced the ambiguity of these results by the use of certain corrections.

Results

The number of patients rated on the first census was 1,932, of whom 998 were male and 934 were female. Between the time of the first census in April of 1951 and the second census[3] in May of 1953, a total of 451 patients left the hospital. This figure does not include patients

[3] Hereinafter, the 1951 behavioral census shall be referred to as *Census I*, and the 1953 census as *Census II*.

TABLE 1

PRESENT AGE—HOSPITAL POPULATION

Age	Census I		Total				
	Male ($N=998$) %	Female ($N=934$) %	Census I ($N=1,932$) %	Census II ($N=1,925$) %	Perm. pop. ($N=1,481$) %	Adm. betw. cens. ($N=444$) %	Disch. betw. cens. ($N=211$) %
16–25	2.7	2.6	2.6	2.8	1.1	8.3	8.5
26–35	11.4	11.7	11.6	8.7	7.8	11.7	12.8
36–45	20.7	18.0	19.4	19.7	21.3	14.2	20.9
46–55	21.9	18.9	20.5	20.4	22.5	13.5	19.9
56–65	17.1	23.2	20.0	19.1	21.0	12.6	22.8
66–75	14.4	14.1	14.3	16.0	16.1	16.0	9.9
76–up	11.7	11.2	11.4	13.2	10.1	23.7	5.2
Undet.	.1	.3	.2	.1	.1		
Mean	53.63	54.10	53.85	55.27	54.96	65.33	49.72
Median	52.18	54.78	53.29	54.68	54.57	57.59	50.11

Note.—Means and medians were computed from data grouped into finer categories than those in this table. The more detailed tables are available upon request. Data for the permanent population are taken from Census II.

who entered the hospital subsequent to Census I and departed prior to Census II; it does include 182 deaths and 58 transfers that occurred during this time. At the time of Census II, a total of 211 patients rated on Census I were absent from the hospital on either provisional or final discharge. The number of patients rated on Census II was 1,925, of whom 991 were male and 934 were female.

Hereafter, the following terms will be used to describe patient groups: "admissions"—the 444 patients rated only on Census II; "discharges"—the 211 patients rated only on Census I; "permanent population"—the 1,481 patients rated on *both* behavioral censuses.

A discussion of the population of Fergus Falls State Hospital will be based primarily on the data from Census I, except where a more accurate determination was made in Census II, or when comparisons are made between the two censuses.

Present Age

There was no special problem connected with the determination of age. For the past 25 years or so it has been customary to collect the birth date. Occasionally, there is some question, especially with older patients, or patients who were admitted a number of years ago, as to their exact age. The age of the patients is determined to the nearest year (for example, a patient who is 60 years, six months, and one day is called 61).

Approximately 36 per cent of the hospital population on Census I is 61 years of age or older, as compared with 39 per cent on Census II. The mean age of the patients on the second census is greater by 1.42 years. This difference is reliable[4] and indicates a trend toward aging of the hospital population. Discharged patients are, on the average, younger than the hospital population.

The fact that the age shift is significant in only a two-year period is of extreme interest in terms of the direction of therapy. If this trend continues, greater attention must be paid to the care of a population which differs markedly from the younger psychotic patient. The older person has interests different from those of the younger person, and must have different types of treatments and activities in which to participate. This also means that the hospital has a smaller number of patients who are capable of performing arduous physical tasks. Therefore an increased number of employed personnel must be available to carry on the routine work of the institution. In addition, the physical layout of

[4] In this paper differences reported as reliable uniformly meet the 1% level of confidence.

TABLE 2

AGE AT FIRST ADMISSION

Age	Census I		Total				
	Male ($N=998$) %	Female ($N=934$) %	Census I ($N=1,932$) %	Census II ($N=1,925$) %	Perm. pop.[a] ($N=1,481$) %	Adm. betw. cens. ($N=444$) %	Disch. betw. cens. ($N=211$) %
16–25[a]	20.7	18.8	19.8	20.0	22.0	13.7	12.3
26–35	25.2	28.0	26.5	25.0	28.4	13.8	25.6
36–45	17.7	19.4	18.4	18.5	19.8	14.2	19.0
46–55	13.5	14.8	14.1	14.2	14.6	12.8	18.0
56–65	9.7	8.2	9.0	7.8	7.2	9.7	16.6
66–75	6.8	5.0	6.0	7.1	4.5	15.5	6.6
76–up	6.2	5.3	5.8	7.2	3.4	20.1	1.9
Undet.	.2	.5	.4	.2	.1	.2	
Mean	41.75	40.52	41.15	41.94	38.71	52.14	43.72
Median	37.45	37.00	37.23	37.70	35.36	52.56	41.47

[a] Patients admitted before the age of 16 constitute approximately 1% of this age group.

the wards must be different in order to accommodate patients whose needs and capabilities differ from those of a younger group.

Age at First Admission

There were no special problems in the determination of age at first admission. In very rare instances in older records the age was not mentioned for a short hospitalization in a Minnesota State Mental Hospital. The data in Table 2 indicate that the greatest percentage of admissions (26.5%) occurs between the ages of 26 and 35 inclusive. The Census II hospital population shows a statistically reliable shift toward an older age at first admission (mean, Census I = 41.2; mean, Census II = 41.9). Patients admitted between the censuses (i.e., rated on Census II, but not on Census I), average 54.1 years of age on first admission. The "permanent" population, on the other hand, has a mean first admission age of 38.7 years.

The comparatively high age at first admission of those admitted between censuses calls for comment. These are recent first admissions. Perhaps admissions to state hospitals are in fact older, reflecting the increased number of aged in the normal population. On the other hand, because of longer life expectancy, younger "chronic" admissions remain in the hospital longer than older "chronic" admissions and hence are more apt to be counted in a census. Perhaps younger admissions have poorer prognoses (for any type of discharge, including death) than do older admissions. These items are discussed later in this paper. Subtle changes, e.g., society's attitudes toward the aged, and changes in modern housing, may also be important in the increased admission age at this hospital.

TABLE 3

AGE OF ADMISSIONS TO FERGUS FALLS STATE HOSPITAL

Age	1 June 1925 through 31 May 1926	1 June 1951 through 31 May 1952		
	First adm. ($N=428$) %	First adm. ($N=375$) %	Readmissions ($N=129$) Age at 1st adm. %	Readmissions ($N=129$) Age at present adm. %
16–25	16.6	9.6	27.1	7.0
26–35	22.4	13.1	15.5	10.8
36–45	22.0	13.9	20.2	26.4
46–55	16.4	15.7	21.7	22.5
56–65	10.0	13.3	8.5	17.8
66–75	8.2	16.8	3.1	8.5
76–up	4.2	17.1	3.1	6.2
Undet.	.2	.5	.8	.8
Mean	42.43	53.91	39.37	48.91
Median	40.99	54.17	38.14	48.18

Consecutive Admissions During One Year

Admission ages for a one-year admission period are given in Table 3. No special problems were encountered in this determination. During this one-year period the average age of read-

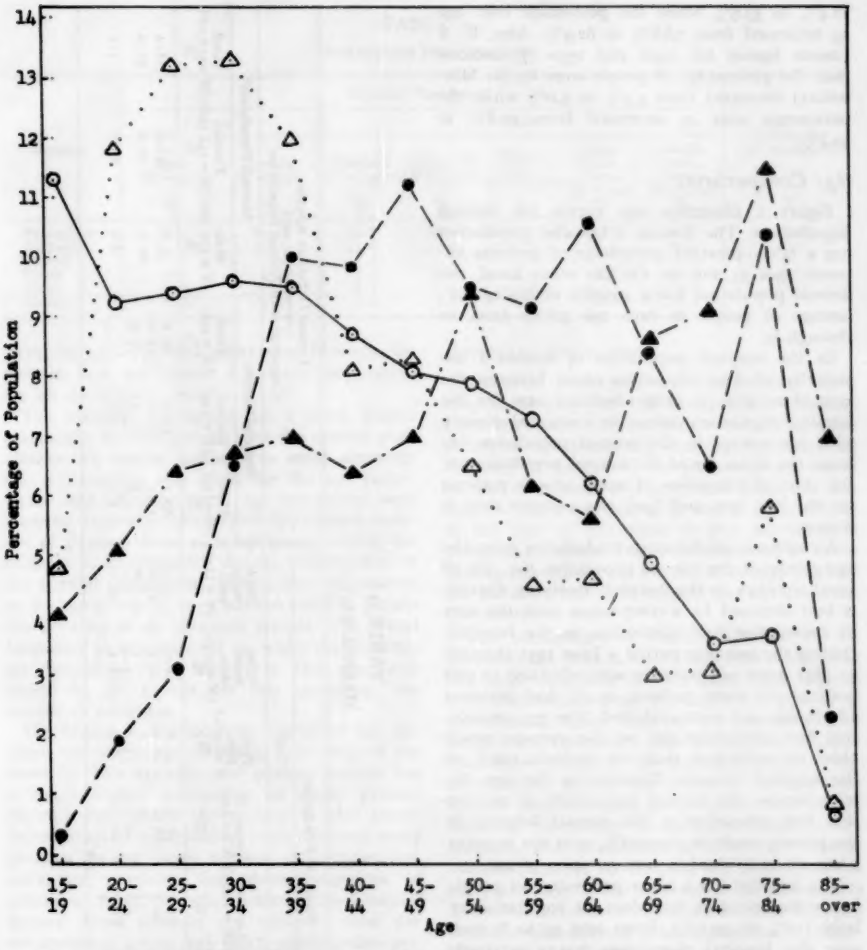

FIG. 1. Present age of normal population compared with present age and age at first admission of hospital patients.

missions, at the time of readmission, was 49, and the average age of first admission was 54. This figure agrees substantially with the first admission age of the patients rated only on Census II (admission between censuses). The mean age of first admissions from 1 June 1925 through 31 May 1926 (42.4 years) agrees very closely with the age of admission of patients studied on Census I (41.2 years).

Other data support the admission-age trends noted at the hospital. For example, the mean age of first admissions to *all* Minnesota state mental hospitals for the fiscal year 1953 was 53.8 years. In this hospital, first-admission figures for the years 1925 and 1951 show that the percentage of admissions over age 65 increased from

12.4% to 33.9% while the percentage over age 45 increased from 38.8% to 62.9%. Also, U. S. Census figures for 1920 and 1950 (7) indicate that the percentage of people over 65 (in Minnesota) increased from 4.7% to 9.0% while the percentage over 45 increased from 20.8% to 30.4%.

Age Comparisons

Figure 1 illustrates age curves for various populations. The Census I hospital population has a fairly constant percentage of patients between ages 35 and 70. On the other hand, the normal population has a steadily declining percentage of people in each age group from 20 through 85.

In the hospital population of Census I the majority of first admissions occur between the ages of 20 and 40. First admission ages for the hospital population cannot be compared directly with age groups in the normal population because the mean age of the normal population, at the time of admission of many of our patients (in the '20s, '30s, and '40s), was younger than it is now.

An estimate of the rate of admission from the age groups in the normal population (i.e., the 38 rural counties in the hospital receiving district) is best obtained by a comparison with the ages of consecutive first admissions to the hospital. During the one-year period 1 June 1951 through 31 May 1952, 504 patients were admitted to this hospital. Of these patients, 25.4% had previous admissions and were excluded. The 375 consecutive first admissions are, on the average, much older on admission than the patients rated on the hospital censuses. Considering the age distribution in the normal population, it appears that first admission to the mental hospital in the present study is, currently, most apt to occur when an individual is over 50 years of age.

The hospital has a lower percentage of people below the age of 35 than does the population-at-large (12% vs. 39.5%). From ages 45 to 85-and-over the hospital population has a relatively higher percentage than does the normal population (68.1% and 42.3%, respectively). Since the most frequent ages at first admission for the census population are 20 to 44, and since the patients have been in the hospital for some time, one would expect that they would distribute themselves in the present older age range.

Age-corrected samples are used in a comparison of items where age differentials must be considered. These age-corrections will be discussed later.

Marital Status

There were no important differences between Census I and Census II regarding the marital

TABLE 4
MARITAL STATUS

Status	Hospital Population							Census II Patient Sample (corrected for age) Compared with Normal Population					
	Census I		Total					Hospital Sample			Normal Population[a]		
	Male (N = 908) %	Female (N = 934) %	Census I (N = 1,932) %	Census II (N = 1,925) %	Perm. pop. (N = 1,481) %	Adm. betw. cens. (N = 344) %	Disch. betw. cens. (N = 211) %	Male (N = 152) %	Female (N = 139) %	Total (N = 291) %	Male (N = 270,280) %	Female (N = 245,796) %	Total (N = 516,076) %
Single	68.1	41.8	55.3	55.5	59.6	41.9	37.4	80.3	58.3	69.8	33.8	22.3	28.4
Married	21.1	38.3	29.5	28.8	26.9	35.3	45.5	15.1	31.7	23.0	61.1	67.0	63.9
Separated	.3	.6	.5	.7	.7	.7	1.9	.7	1.4	1.0			
Divorced	2.0	4.4	3.0	4.1	4.2	3.4	5.2	2.6	5.0	3.8	5.1	10.7	7.7
Widowed	7.2	14.3	10.6	10.7	8.4	18.5	10.0	1.3	3.6	2.4			
Undet.	.4	.6	.5	.2	.2	.2							

[a] Includes all age groups 14 years or over.

TABLE 5

RELIGIOUS PREFERENCE

Religion	Hospital Population							Normal Population ($N = 540,962$)
	Census II		Total					
	Male ($N = 991$)	Female ($N = 934$)	Census I ($N = 1,932$)	Census II ($N = 1,925$)	Perm. pop. ($N = 1,481$)	Adm. betw. cens. ($N = 444$)	Disch. betw. cens. ($N = 211$)	
	%	%	%	%	%	%	%	%
Protestant	64.4	69.5	61.8	66.9	65.0	73.0	62.1	38.8
Catholic	24.4	24.7	24.6	24.6	25.2	22.5	25.1	26.0
Jewish	.1	.1	.1	.1	.1			
Other	8.7	4.6	1.2	6.7	7.9	2.7	9.5	3.1
None	.2		8.7	.1	.2		.9	32.1
Undet.	2.2	1.1	3.6	1.6	1.6	1.8	2.4	

status of patients. The differences between the normals and the Census I hospital population are all statistically reliable.

The hospital population has a much higher percentage of older people than the normal population. To render comparisons more meaningful, a correction was made for the age factor. These and all subsequent age-corrections were made by randomly selecting an appropriate number of patients from each age-group among the patients to approximate the age distribution of the normal population. The number of patients in the age-group 15 to 19 was too small to permit the drawing of an adequate sample. The actual frequency in this group is 13, while the theoretical frequency for a sample in this age-group would be 36. Except for this age-group, the sample is adequate.

On Census I, the majority (55%) of the patients are single, compared to only 28% of the normals. The age-corrected patient sample has a much higher proportion of single persons (69.8%) than either the normal or the uncorrected hospital populations. It may be that many patients do not marry because of seclusive personalities, passivity, the adverse reactions of others to them, or other unattractive biosocial factors. Some patients are removed from the environment before they reach marriageable age. On Census I, almost 15% of the hospital population is widowed or divorced, compared with only 8% of the normal population. In the age-corrected sample, the widowed-and-divorced category is equal to that of the normal population. Detailed 1950 census data for the *entire state* (7) indicate that 4.1% of males are widowed and 1.6% are divorced, while 10.6% of females are widowed and 1.9% are divorced. If these percentages apply to the population in the receiving district of the hospital, it is apparent that the hospital population has a much higher percentage of divorced people. (The preliminary U. S. Census figures for 1950 group the categories widowed and divorced. Detailed final figures are not available for the receiving district of the hospital.)

Religious Preference

Religious preference was determined from religion as given on the commitment paper or from the patient's own statement at the time of admission. There are instances in which the religious preference of the patient is not stated on the commitment papers, and there are also cases in which the patient is unable or unwilling at the time of admission to give his religious preference. Census II figures are quoted in Table 5 since this census has a more thorough check of the patient's record if religion was not listed on the admission note.

The percentages of church members of the predominant sects in Minnesota were taken from the 1936 Religious Census (6). These figures were determined from the membership rolls of the church, rather than by the questioning of individuals. Compared with the hospital population, more people in the normal population are classified as having no religion. The Catholic church membership as given agreed very closely with the percentage of Catholics found in the hospital. The percentage of Protestant church members outside the hospital was lower than was the percentage in the hospital. In the community a Protestant church member will be dropped from the church rolls if his attendance is irregular, since the church must pay a certain sum per member into the national organization. Many people may not be registered as members, but, if asked, would state that they were. In the Roman Catholic church, a person who has been a Catholic is regarded as such until his defection becomes "public knowledge," whether or not the member is active.

Because of these differences in determination of religion the percentage figures for normal population and hospital population must not be compared directly. Catholic percentages agree closely in the normal and hospital populations. It is likely that Protestant percentages are more in agreement than the unexplained data indicate.

TABLE 6

PHYSICAL DEBILITATION

Status	Hospital Population							Census II Patient Sample (corrected for age) Compared with Normal Population	
	Census I		Total						
	Male ($N = 908$) %	Female ($N = 934$) %	Census I ($N = 1,932$) %	Census II ($N = 1,925$) %	Perm. pop. ($N = 1,481$) %	Adm. betw. cens. ($N = 444$) %	Disch. betw. cens. ($N = 211$) %	Hospital ($N = 291$) %	Normal ($N = 503,325$) %
Without	85.0	84.6	84.8	85.6	88.6	75.4	92.4	89.4	99.1
With	15.0	15.4	15.2	14.4	11.4	24.6	7.6	10.6	.9

Physically Debilitating Conditions

Defining physical disability was difficult. In Census I all patients whose behavior was impaired because of physical factors were counted as debilitated. Chronicity of the illness was not considered. In Census II, people with temporary disability were not included. For this reason patients recovering from operations, broken limbs, or bedridden with acute short-term illnesses, were not counted as being physically handicapped. If the illness was severe enough to be noted on the physical examination, or if it was felt by a physician to be chronic rather than acute, or if the illness would permanently limit the behavior of the patient, it was classed as a physically debilitating factor. Amputation, blindness in one eye, or partial uncorrectible difficulty in seeing or hearing (provided these were serious enough to be mentioned in the notes on physical factors) were all counted as physical handicaps. Epileptics were not counted as handicapped unless their condition was so severe that it necessitated their being bedridden. Patients who suffered from a partial paralysis, or from a marked loss of a sense of balance were classed as physically handicapped. The figures for the normal population were derived from the number of beds in medical hospitals and in rest homes. This figure does not include all of the chronically disabled people in the community, many of whom remain in private homes. However, the disparity between those listed as disabled in the population at large and those in the hospital population seems too great to be accounted for wholly on this basis. In the age-corrected sample (previously used in Table 4) 10.7% of the patients are classified as debilitated. The disparity between the normal and hospital populations remains great.

The aged frequently have physical debilitation and personality change occurring in combination, and the high percentage of aged in the hospital population partially accounts for the high frequency of physical disability. In the younger patient the presence of a physical handicap may result in certain unfavorable changes in personality which necessitates institutionalization in a mental hospital. People who have a physical handicap and an unstable personality tend to remain in the hospital rather than attempt a marginal adjustment on the outside. Perhaps all of these factors contribute to the relatively large number of physically handicapped found in the hospital.

Length of Hospitalization

The data for Table 7 were taken from Census I. It should be noted that the bulk of the population is made up of so-called chronic, long-term patients, and that, despite the relatively large number of admissions which this hospital receives in the course of a year, only 14% of the population has been here less than two years. This figure includes approximately 100 recent admissions.

The mean length of hospitalization of the census population is 11.22 years. The patients who stay two years or more (86% of our population) present the greatest therapeutic challenge. Even though present treatment methods are inadequate for them they accounted for 35% of discharges between censuses. The number of patients hospitalized between six and twenty years tends to remain relatively constant. After this time a sharp decline is found, which probably reflects the increasing death rate of those patients. Also of interest is the difference in mean length of hospitalization between males and females. This difference, which is reliable, may reflect the slightly longer life span of the female, since females are approximately the same age as males on first admission. Perhaps, also, females are sicker or slower to recover than males.

Educational Level

Educational level in Table 8 is based primarily on Census II since definitions of the levels agree more closely with those of the U. S. Census Bureau. All "common school" educations are placed in the 5-to-7-year group. (In Census I "common school" educations were regarded as equivalent to graduation from the eighth grade, since only six years of schooling were available in many areas of this state or in foreign coun-

TABLE 7

LENGTH OF HOSPITALIZATION

Years	Census I		Total				
	Male ($N=998$) %	Female ($N=934$) %	Census I ($N=1,932$) %	Census II ($N=1,925$) %	Perm. pop. ($N=1,481$) %	Adm. betw. cens. ($N=444$) %	Disch. betw. cens. ($N=211$) %
.5 or less	7.4	3.8	5.7	6.7	.1	28.8	26.5
1	8.0	8.4	8.2	8.3	.2	35.4	21.8
2	9.5	8.4	9.0	5.8	1.5	20.1	16.1
3	5.7	3.2	4.5	5.2	5.4	4.7	7.1
4	5.7	5.4	5.5	5.0	5.8	2.5	5.2
5	3.4	4.6	4.0	4.1	4.9	1.4	3.3
6–10	15.7	18.9	17.3	16.9	20.9	3.4	9.0
11–15	20.1	15.5	17.9	15.6	19.9	1.4	7.1
16–20	11.8	13.4	12.6	14.6	18.6	1.4	2.4
21–25	5.4	7.2	6.3	7.9	10.1	.2	1.4
26–30	2.9	4.8	3.8	4.2	5.3	.5	
31–35	2.9	2.4	2.6	2.8	3.6	.2	
36–up	1.4	3.2	2.3	2.6	3.4		
Undet.		.8	.4	.3	.3		
Mean	10.48	12.02	11.22	11.71	14.77	2.72	3.72
Median	8.75	9.80	9.30	9.91	13.31	1.10	1.60

tries.) The term "specialized education" includes college as well as the usual varieties of training which, although not customarily given grade designations, have a more or less formal sequence of tasks to be mastered. On-the-job training usually was not regarded as specialized education unless accompanied by formal classwork. The designation "specialized education" does not necessarily imply graduation from high school. Completion of the eighth grade is sufficient for inclusion, since it was not uncommon for an individual to have graduated from the eighth grade and then to have taken one or two years of training in a specialized subject such as agriculture. For the present generation graduation from high school is generally a prerequisite to further training. All those who have received any form of college, nurses' training, business school, etc., are grouped in the category "specialized education" and are not listed under any other category.

The percentage of undetermined educations is relatively high and constitutes 2.4% of the hospital population (Census I = 10.7%). This may reflect the reluctance of relatives to state education when the patient has completed only a very few years of school or when they feel that his school performance has been unsatisfactory.

TABLE 8

EDUCATIONAL LEVEL

Level	Hospital Population							Census II Patient Sample (corrected for age) Compared with Normal Population	
	Census II		Total						
	Male ($N=991$) %	Female ($N=934$) %	Census I ($N=1,932$) %	Census II ($N=1,925$) %	Perm. pop. ($N=1,481$) %	Adm. betw. cens. ($N=444$) %	Disch. betw. cens. ($N=211$) %	Hospital ($N=249$)	Normal ($N=503,325$) %
0–4 grade	23.6	18.8	14.3	21.3	22.6	16.9	9.5	19.7	7.0
5–7 grade	31.6	27.3	18.0	20.5	31.1	24.1	17.5	26.5	17.7
8th grade	26.4	23.4	37.0	24.9	24.1	27.5	40.8	30.9	37.9
9–12 grade	11.6	17.3	13.9	14.4	13.2	18.5	21.3	18.9	25.0
Any spec. education	4.4	10.8	6.1	7.5	7.1	9.0	6.6	3.2[a]	10.8[a]
Undet.	2.4	2.4	10.7	2.4	1.9	4.0	4.3	.8	1.6

[a] College only.

The percentage of unknowns is also partially explained by the antiquity of some records.

Comparison with the educational level of the general population presented a problem. U. S. Census estimates for 1947 indicate that 68% of the population in the age-group 30 to 35 had completed more than eight school grades, contrasted with only 28% age 65 and over. The disproportionately high percentage of older people tends to lower the educational level of the hospital population, necessitating the use of age-corrected data in making comparisons with the normal population. Table 8 provides data on the educational level of the age-corrected sample.

In order to render the data comparable with the U. S. Census, the term "specialized education" in the age-corrected sample was redefined as college training only, and excludes business schools, nurses' training, etc. As a result of this redefinition, the percentage in this classification declined from 5.5% to 3.2%. Most of those excluded are now in the group with 9 to 12 years of schooling.

It is apparent that a high percentage of the hospital population has a poorer education than the normal population. Although the feebleminded in the hospital population undoubtedly influence data on educational level, the percentage so diagnosed (8.6%) appears too small to materially alter the discussion. The achievement of the hospital population remains considerably below that of the normal population even after excluding from consideration all diagnoses of mental deficiency. Perhaps the personality handicaps of some patients are reflected in an inability to function efficiently or to remain at a task to completion (e.g., completing school). In our society low intelligence (and/or achievement) is usually associated with low income, as well as other social disadvantages, which tend to impose a psychological burden. Perhaps psychoses are associated with low intelligence in our society, or perhaps the more intelligent may, through their extra resources, or resources of friends and relatives, less often go to a state institution, and perhaps the more intelligent have a better prognosis and are less apt to remain in a state institution.

Diagnostic Classification

Diagnoses given in this paper (Table 20) are based on the revised 1934 statistical classification systems (4). The hospital population follows the national trend. Approximately 50% of the patients have a diagnosis of schizophrenia. A diagnosis of mental deficiency is given 8.6% of the patients, versus an expectation, on the basis of psychological tests, of a maximum of 2½% in the general population. Of these mentally deficient patients, 32.3% are diagnosed as being without psychosis and 67.7% are diagnosed as with psychosis. The high percentage of patients diagnosed as without psychosis is partially due to the long waiting list at the state school for the feebleminded. On the basis of educational level most diagnoses of mental deficiency appear reasonably accurate.

TABLE 9

ADMISSION DIAGNOSES—1 JUNE 1951 THROUGH 31 MAY 1952
(N = 504)

Code	Diagnosis	N	Code	Diagnosis	N
000	Undiagnosed	5	17	Manic-depressive psychoses	36
01	Psy. with syph. meningo-enceph.	4	171	Manic type	20
02	Psy. with other syph. of CNS	2	172	Depressed type	10
05	Psy. due to alcohol	2	174	Mixed type	4
07	Psy. due to trauma	1	18	Schizophrenia	121
08	Psy. with cerebral arteriosc.	51	180	Unclassified	2
09	Psy. with disturb. of circul.	10	181	Simple type	22
10	Psy. due to conv. disord. (epil.)	4	182	Hebephrenic type	5
11	Senile psychoses	83	183	Catatonic type	6
111	Simple deterioration	51	184	Paranoid type	59
115	Paranoid type	15	185	Other types	27
12	Involutional psychoses	62	19	Paranoia and paranoid cond.	6
121	Melancholia	39	20	Psy. with psychopath. personal.	1
122	Paranoid type	13	21	Psy. with mental deficiency	10
13	Psy. due to metabolic, etc., dis.	1	22	Undiagnosed psychoses	11
15	Psy. due to unknown or heredit. assoc. with organic change	8	23	Without mental disorder	44
16	Psychoneuroses	41	230	Unclassified	2
161	Hysteria	10	232	Alcoholism	23
165	Reactive depression	16	234	Mental deficiency	5
166	Anxiety state	3	236	Psychopathic personality	8
			237	Other non-psy. disease	6
			24	Primary behavior disorder	1

Admission Diagnoses

Table 9 includes diagnoses of all admissions[3] between 1 June 1951 and 1 June 1952 and permits comparisons with the frequency of diagnoses found among the patients in our census. The proportions of admission diagnoses of psychoses with cerebral arteriosclerosis, psychoses with other disturbances of circulation, senile psychoses, involutional psychoses, psychoneuroses, manic-depressive psychoses, and alcoholism are considerably higher than the proportions among patients included in the census. Conversely, the proportions of the diagnoses of psychoses due to unknown or hereditary cause but associated with organic change, schizophrenia, psychoses with mental deficiency, and certain disorders without psychosis (excluding alcoholism) are higher among the census population. The above trends probably have some relationship to the prognoses of patients in these categories.

Later discussion will take into consideration the shifts in diagnoses that have occurred between the censuses, in an effort to determine the effects of treatment, discharge, and death.

Behavioral Ratings

The appendix shows each of the areas rated on the scale. The number preceding each statement does not appear on the scale. Only a blank space is provided for a check mark. Absolute interval equality is not claimed for statements that are made under each one of the areas rated, but it is felt that each of the statements represents a behavioral advance over the previous one. Needless to say, not all patients were rated on all areas, because some patients were not observed in a particular form of behavior; also, some ratings for an area were discarded as invalid. The average percentage of undetermined ratings on areas "A" through "K" (excluding "F") is 4.3%.

Area "A," Work

The average female does a little work with a lot of urging and needs constant supervision. On the other hand, the average male is much more apt to have a regularly assigned job under supervision. (These statements are the best verbal approximations of the behavioral ratings and assume face validity of scale statements.) This difference between the sexes is both statistically reliable and clinically significant. There is no reliable difference between the two censuses.

It can be seen from Table 10 that males are much more capable of functioning at the level of a rating between 3 and 5 points in the area "Work." A patient rated 4 is performing at a relatively normal level. In most such cases, only a minimum of supervision is required, and the patient is able to make the routine decisions that the job necessitates. Twenty-one per cent of the men and 17% of the women perform at this level.

An explanation of the superiority of males is difficult. Perhaps the majority of jobs in the hospital are of a type with which males are more familiar. Males are more frequently employed in a large establishment where functions such as farming, laundry, cafeteria, construction and maintenance, and janitor work closely approximate those of the hospital. Much of the housework of the institution bears little, if any, resemblance to that done by the average housewife. Dishwashing, for example, is a matter of perhaps 10,000 dishes per meal and is done on an assembly-line basis. Perhaps the male worker in the hospital enjoys greater prestige and receives more consistent rewards. Since the need for male workers is much greater, hospital industries may be more willing to devote time to training and keeping them. There are more open men's wards (in which patients have freedom of the hospital grounds) then open women's wards. It is also possible that women patients as a group are somewhat more variable in their behavior.

Area "B," Response to Meals

Males and females are approximately equal. The average patient seems to eat by himself using a knife, fork, and spoon properly, but may at times have some problem. It would also seem that the average patient will ask for things to be passed at the table but will do little else. Very few patients require special attention at meals. On Census I a total of only 159 patients, or 8% of the rated population, required this form of attention. There were no reliable changes between the first and second censuses.

Area "C," Attitude to Other Patients

Males are reliably better in this regard than females. On Census I the average female is somewhat unfriendly but may speak to others and even have a friend. The males, on the other hand, are more consistently rated as being friendly and having some spontaneity in making contacts and initiating play or work of a fairly high order. Approximately one-third of the patients are quite seclusive and/or hostile. About one-half are quite friendly and operate at a fairly high social level.

Patient contact is of a higher order than is generally assumed. The greatest difference between males and females is in the range 4 to 5.

[3] The term "admissions" in this paragraph refers to admissions for this one-year period and not to "admissions" as defined earlier in the study.

TABLE 10

RATINGS OF PATIENTS ON THE AREAS OF THE L–M SCALE

Behavior Area and Group	Behavior Rating					Mean		
	1 %	2 %	3 %	4 %	5 %	Census I	Census II	Discharges
A. Patient's attitude to work								
Male[a]	38.7	11.4	27.2	8.4	12.4	2.48	2.50	3.46
Female[b]	47.8	16.9	17.9	7.3	9.4	2.20	2.14	3.21
Total[c]	43.1	14.1	22.7	7.8	11.0	2.34	2.32	3.34
B. Patient's attitude to meals								
Male	7.3	22.8	32.3	24.0	13.3	3.22	3.20	4.05
Female	9.2	29.4	29.2	10.1	21.7	3.17	3.14	4.22
Total	8.2	25.9	30.8	17.3	17.4	3.20	3.17	4.13
C. Patient's attitude to other patients								
Male	31.7	14.1	32.9	11.0	8.7	2.56	2.65	3.67
Female	36.6	17.6	32.9	5.9	6.6	2.35	2.42	3.42
Total	34.1	15.8	32.9	8.5	7.7	2.46	2.53	3.55
D. Patient's attitude toward psychiatric aides and nurses								
Male	20.5	26.7	24.8	15.5	8.8	2.74	2.87	3.81
Female	22.6	35.4	18.3	8.5	14.0	2.67	2.59	3.87
Total	21.5	30.9	21.7	12.1	11.3	2.70	2.74	3.84
E. Patient's attitude toward doctors, social workers, and psychologists								
Male	4.6	25.5	41.7	13.1	5.2	2.94	2.90	3.61
Female	10.3	32.3	40.7	7.2	1.1	2.62	2.64	3.30
Total	7.4	28.8	41.2	10.2	3.2	2.79	2.78	3.47
F. Patient's response to electric or insulin therapy								
Male	1.0	1.3	4.6	1.0	.6	2.90	2.90	3.41
Female	3.5	6.7	6.4	1.0	.2	2.44	2.38	2.64
Total	2.2	3.9	5.5	1.0	.4	2.60	2.51	2.88
G. Patient's attitude to occupational and recreational therapy								
Male	34.1	17.7	18.1	6.9	9.4	2.36	2.53	3.56
Female	30.3	27.7	20.0	12.4	6.1	2.45	2.53	3.46
Total	32.2	22.5	19.1	9.6	7.8	2.40	2.53	3.52
H. Attention to dress and person								
Male	9.3	33.8	14.3	19.2	14.6	3.01	3.12	3.94
Female	14.9	32.9	21.8	10.8	18.2	2.94	2.83	4.00
Total	12.0	33.3	17.9	15.1	16.4	2.97	2.98	3.97

Note.—Because the rating for each area is the average of two raters, a patient may receive a rating that is not a whole number. (This occurs in approximately 10 per cent of the cases.) The percentages in a given row do not add up to 100 per cent because of a small proportion of "undetermined" ratings.

[a] Cen. I, $N=998$; Cen. II, $N=991$; Disch., $N=113$.

[b] Cen. I, $N=934$; Cen. II, $N=934$; Disch., $N=98$.

[c] Cen. I, $N=1{,}932$; Cen. II, $N=1{,}925$; Disch., $N=211$.

TABLE 10—(*continued*)

Behavior Area and Group	Behavior Rating					Mean		
	1 %	2 %	3 %	4 %	5 %	Census I	Census II	Discharges
I. Psychomotor activity								
Male	12.3	17.2	12.2	25.4	20.1	3.35	3.57	4.29
Female	19.6	15.9	16.5	20.5	24.2	3.26	3.28	4.31
Total	15.8	16.6	14.3	23.0	22.0	3.30	3.42	4.30
J. Speech								
Male	20.3	20.7	8.5	18.5	28.0	3.22	3.18	4.34
Female	18.8	14.0	14.8	22.5	26.0	3.35	3.12	4.47
Total	19.6	17.5	11.5	20.5	27.0	3.28	3.15	4.40
K. Toilet behavior								
Male	9.2	4.3	12.9	15.7	56.5	4.10	4.16	4.70
Female	11.4	7.6	22.4	16.0	39.1	3.73	3.91	4.58
Total	10.3	5.9	17.5	15.8	48.1	3.92	4.04	4.65

Although the difference is not statistically reliable both males and females improved slightly between Census I and Census II. If this trend continues it may be a reflection of the increased emphasis on socialization.

Area "D," Response to Psychiatric Aides and Nurses

Males and females do not differ reliably. The average patient in this area does most things when asked and may make simple requests. On Census II males showed an improvement which approached statistical reliability. Females declined in this area. Patients are not as hostile as one might assume. The results of increased social programming throughout the hospital may have paid greater dividends on the male side of the hospital. This finding is consistent with the results of a *total-push* program for regressed patients (1, 5).

Area "E," Response to Doctors, Social Workers, Psychologists

The lower number of patients rated in this area (90.8%) reflects the lack of contact with nonnursing professional personnel in the hospital. Again males are found more often at the upper levels. A statistically reliable sex difference was found on both censuses. Although the evidence thus far presented from the census indicates that male patients show better behavior than female patients, it must be remembered that the overlap is great. In this area, for example, 9% of the females have a higher rating than 80% of the males and 5% of the males have a lower rating than 89% of the females.

Area "F," Response to Electric or Insulin Therapy

This area concerns patient attitudes toward the administration of treatments, and only recently treated patients are rated. 251 patients were rated on Census I and 539 on Census II. On both censuses males were less antagonistic and apprehensive than females. There was no reliable difference between Census I and Census II in the average response to this form of treatment. The larger N on the second census undoubtedly represents an increased use of electric and insulin therapies in the hospital.

Area "G," Occupational and Recreational Therapy

On Census I males and females did not differ reliably, but females tended to be higher. This may have been due to the effective occupational and recreational therapy program that Fergus Falls has carried on for a long time, which was somewhat more extensive on the women's side of the hospital, and which emphasized things that women characteristically do, e.g., embroidering, fine painting, etc. In Census II it was found that the males had shown a statistically reliable improvement which made them equal to the females. The interim increase in recreational and occupational therapy programs on the male wards and the initiation of an aide training program (resulting in greater acceptance of, and more interest in activities) may explain patient improvement in this area.

TABLE 11

AVERAGE OF AREAS "A" THROUGH "K"–"L"

Group	Census I grouped by average rating					Mean behavior rating				
	1.0–1.9 %	2.0–2.9 %	3.0–3.9 %	4.0–4.9 %	5.0 %	Census I	Census II	Perm. pop.	Admissions	Discharges
Male[a]	17.1	30.8	32.0	20.1		2.96	3.07	2.96	3.28	3.90
Female[b]	23.3	31.2	27.4	17.7	.3	2.82	2.84	2.76	3.18	3.84
Total[c]	20.1	30.9	27.8	18.9	.2	2.89	2.94	2.86	3.24	3.87

[a] Cen. I, $N=998$; Cen. II, $N=991$; Perm. pop., $N=735$; Adm., $N=256$; Disch., $N=113$.
[b] Cen. I, $N=934$; Cen. II, $N=934$; Perm. pop., $N=746$; Adm., $N=188$; Disch., $N=98$.
[c] Cen. I, $N=1,932$; Cen. II, $N=1,925$; Perm. pop., $N=1,481$; Adm., $N=444$; Disch., $N=211$.

The average patient in occupational and recreational therapy will participate when asked, but will require frequent urging. He may show some spontaneity.

Area "H," Attention to Dress and Person

Although the difference is not reliable, the males tend to be slightly better than the females. The average patient has some interest in his appearance. A comparison between the first and second censuses shows that the males improved, whereas the females tended to decline. The difference between males and females on Census II is reliable. Scale artifact may be responsible for the somewhat atypical distribution of patients in the various behavioral levels of this area.

Area "I," Psychomotor Activity

The average patient exhibits some purposeful behavior and also some behavior which is a result of the illness. The males showed a highly reliable increase in their behavior rating on the second census (gain = .22). At this level activity is usually purposeful although movements may be somewhat erratic in terms of hypo- or hyperactivity. (There are more female than male hyperactive wards in the hospital.) As a result of the improvement in male behavior the hospital population was reliably better on Census II.

Area "J," Speech

There was no reliable difference in speech between males and females, although the females were slightly higher on the first census. The average in this area is quite high. Many of our patients speak in short, clear sentences if they have a request to make. There was a reliable decrease between Census I and Census II for the female population of the hospital (from 3.35 to 3.12). The males remained constant. This is the first statistically reliable fluctuation that the females have shown in the present study.

Area "K," Toilet Behavior

As a group, patients are relatively high in terms of toilet behavior. With some exceptions such as being too neat or spending too much time or perhaps being incontinent on rare occasions, the average patient is normal. Again the males are, on the average, superior to the females, and the difference is large enough to be both reliable and clinically significant. Both males and females improved on Census II, and the female and total populations were reliably higher. This improvement may reflect the discontinuance of the various physical restraints in the hospital, and the gradual retraining of patients who had been untidy and incontinent for a number of years.

It is generally conceded that women need more time and space in the bathroom in order to be "properly groomed." It should be mentioned that toilet facilities in the hospital are more adequate for men. For example, wards of comparable size have the same number of stools but the men's wards also have urinals.

"L," Average of Behavior Ratings of Patients

An average of the ratings of a patient on the eleven behavioral areas is more reliable and representative of the patient's total behavior than any one area of the scale. Minor fluctuations and variations will tend to be canceled out. The behavioral average of patients has been demonstrated to be both reliable and meaningful (3). Areas of the scale have not been studied so carefully.

The average for the entire hospital was slightly higher on Census II, but the difference was not statistically reliable. Males were reliably better than females on both censuses. Males also showed a statistically reliable improvement between Census I and Census II, while females showed

TABLE 12

AVERAGE BEHAVIOR RATINGS OF 50 STUDENT NURSES COMPARED WITH THE HOSPITAL POPULATION (CENSUS I)

Group	Area									
	A	B	C	D	G	H	I	J	K	L
Nurses	4.6	4.7	4.0	4.4	4.2	4.9	4.8	4.8	4.9	4.6
Patients	2.3	3.2	2.5	2.7	2.4	3.0	3.3	3.3	3.9	2.9

essentially no difference. The population that was in the hospital on *both* censuses (the "permanent" population) also showed a reliable difference between males and females, the males being better. This very consistent tendency for males to be rated higher than females may be of considerable importance to the administration of a mental hospital. The permanent population shows no variation in average behavior ratings between Census I and Census II, although they had a lower behavioral average than those not rated on both censuses.

The difference between average behavior ratings for males and females, either admitted or discharged, indicates that females are approximately .1 lower than males. But male admissions are not reliably higher, nor male discharges reliably lower in behavioral rating than female admissions and discharges; these facts, then, do not seem to account for the improvement shown by the males between Census I and Census II.

It was found in a follow-up of a group of patients treated on a *total-push* program (1, 5) that males tended to improve more and hold their improvement while females improved less and did not hold their improvement. The Fergus Falls hospital population exhibits a clear, consistent tendency for mentally ill females to have a lower average behavior rating than mentally ill males.

These findings suggest a need for more staff on the female wards of the hospital. Reorientation of the hospital administration toward the problems of female patients may be of some assistance in improving general behavior. Perhaps more attention should be devoted to such things as make-up, the fitting of clothing, the types of jobs assigned to female patients, and so on.

The differences in behavior ratings found to exist between Census I and Census II cannot be explained with certainty at this time. Perhaps the initiation and maintenance of an expanded therapeutic program (dating from increased funds in 1949) resulted in a gradual improvement in the behavior of patients. It will be necessary to make further behavioral censuses at equal intervals to answer a number of questions regarding the stability and areas of improvement noted on these censuses.

Ratings on Student Nurses

One might suppose that the L-M Scale would not differentiate adequately among normals since most of them would receive a rating of approximately 5, which is the upper limit of the scale. Presumably, however, this average would give some indication of differences that may exist between "normals" and mental patients.

A group of 50 student nurses were rated by two of their classmates on the L-M Scale. The students lived together in a nurses' home for three months prior to the ratings, and had also worked on different wards in the hospital. The average rating that these students received was 4.6. Four students received an average rating of 4.2 and five received an average rating of 4.3. The two areas rated lowest were "C" (response to peers) and "G" (occupational and recreational therapy). The rating was approximately equal to that of the highest-level ward in the hospital. This ward has only long-term and convalescent patient workers (patients' average was 4.6). It should be remembered that students are young, single females, of above-average intelligence, who were rated on behavior in a less restricted environment than that of the patients.

These results imply that more subtle things than the overt behaviors measured by the scale play a role in adjustment. Perhaps attitudes toward others or toward hospital living are very important. Certainly many patients at the level of 4.5 could leave the hospital if they chose to do so (and some do). Some patients at this level are unable to interact satisfactorily with other people and are not permitted to leave.

The rankings of patients and students are given in Table 12. The groups show the greatest differences on Areas "A" (work), "G" (occupational and recreational therapy), "H" (attention to dress and person), "D" (response to immediate supervisors), and "C" (response to peers).

Such things as present age, age at first admission, and so on were studied in relation to the average behavior rating of patients, and these results are quoted and discussed below. Unless otherwise noted, these analyses are from Census I.

TABLE 13

BEHAVIOR RATINGS IN RELATION TO DEBILITATING CONDITIONS

Status	Census I Population		Census II Patient Sample (corrected for age)	
	N[a]	*M*	*N*	*M*
Nondebilitated	1,638	3.04	260	3.04
Debilitated	294	2.38	31	3.13
Total	1,932	2.89	291	3.05

[a] Includes approximately .5% undetermined cases.

TABLE 14

AGE AND LENGTH OF HOSPITALIZATION IN RELATION TO DEBILITATING CONDITIONS

Item (in years)	Nondebilitated ($N = 1,638$[a])	Debilitated ($N = 294$[a])
Mean Present Age	52.10	63.62
Median Present Age	51.18	66.50
Mean Age at 1st Adm.	39.21	51.98
Median Age at 1st Adm.	35.81	53.00
Mean Length of Hosp.	11.50	9.66
Median Length of Hosp.	10.03	5.83

[a] Includes approximately .5% undetermined cases.

Behavior Ratings of the Physically Debilitated

There were 294 patients (150 male, 144 female) who were considered to have physical handicaps. Since these handicaps would affect the ratings rather markedly, especially on such things as psychomotor activity, the authors excluded these people in the belief that such averages would be spuriously low.

In the non-age-corrected data there is a marked difference in average behavior-rating between those patients who are physically debilitated and those who are not. This finding would be expected since many of the areas on the behavior rating scale presume that the patient is physically able. The age-corrected sample of the hospital population was analyzed for average behavior rating of the physically debilitated. The exclusion of a large number of elderly patients in the age-correction process resulted in a substantial improvement in the average rating of the physically debilitated group. In this age-corrected sample the behavior rating of the debilitated is equal to that of the nondebilitated.

On items with statistically reliable differences between the debilitated and nondebilitated, the results will be discussed for the two groups separately.

Behavior Ratings in Relation to Present Age

Nondebilitated patients between the ages of 51 and 65 have an average behavior rating slightly higher than that of any other age group. Patients under 40 and over 75 tend to show poorer behavior than the average patient. There is a modest curvilinear relationship (eta = .15) between present age and behavior rating. The physically debilitated population does not exhibit a relationship between behavior rating and present age. Aged patients are more frequently classified as debilitated. The physically debilitated population is 10 years older than the *total* hospital population. In the Census II age-corrected sample, the physically debilitated patients are older (mean = 50.6) than the nondebilitated (mean = 43.5).

Because of some differences in the definition of debilitation, caution should be exercised in a comparison of Census I and Census II data.

Behavior Ratings in Relation to Age at First Admission

Table 15 indicates a curvilinear relationship between behavior rating and age at first admission (eta = .27). Up to age 65, patients show a trend toward higher behavior rating as their

TABLE 15

AGE AND LENGTH OF HOSPITALIZATION IN RELATION TO BEHAVIOR RATINGS OF NONDEBILITATED PATIENTS

Item	*N*	*r*	η (eta)	$P.E._{\eta}$	χ^2	*n*	*p*
Present Age	1,635	+.05	.15	.016	33.4	11	.001
Age at 1st Adm.	1,633	+.10	.27	.016	110.0	12	.0000
Length of Hosp.	1,630	−.13	.19	.016	31.5	6	.0000

age at first admission increases. This increase in behavior rating is in accord with the hypothesis that the older an individual is upon becoming mentally ill, the less severe has been his degree of maladjustment in society. A priori, a patient who is admitted before the age of 25 would have more difficulty in adjustment than an individual admitted between 40 and 65. A person admitted beyond the age of 65 has more difficulty in hospital adjustment than a somewhat younger patient. On age at first admission, the physically debilitated population is thirteen years older (mean = 52.0) than the nondebilitated population (mean = 39.2). The relative percentage of physically debilitated is much higher in the older age groups. Physical deterioration (reflected in a lower behavior rating) seems to play an important role in the admission of the aged patient.

Behavior Ratings in Relation to Length of Hospitalization

Patients hospitalized two years or less have a definitely higher behavior rating than other patients. There is a steady regression in behavior rating up to 20 years of hospitalization. After this time the ratings begin to improve and those patients who have been hospitalized 26-45 years show behavior that is equal to or higher than the average patient in the hospital. After 45 years there is a very marked regression in behavior, probably as a result of aging. The most interesting aspect of this relationship is the definite cessation of regression that occurs. This suggests that behavioral regression is not continuously progressive. This hypothesis is supported by the highly reliable difference between the correlation ratio and the product-moment correlation (cf. Table 15).

Obviously, the hypothesis of continuing regression is inadequate. The hospital's experience with its older long-term patients has indicated that many show spontaneous remissions. The illnesses are frequently said to have "burned out." The needs of an individual of 50 years are, of course, different from those of a person of 30. Observation indicates that a considerable number of aged patients could be discharged if they were not so dependent upon the hospital. Within the institution they are capable of functioning at a very high level.

This phenomenon of improvement after 20 years of hospitalization emphasizes the importance of studying the long-term mentally ill. Generalizations made from short-term patients are not necessarily applicable to all mental illness.

Physically debilitated patients have a median length of hospitalization approximately four years less than that of the nondebilitated population. The median for debilitated males is approximately four years and the median for females is approximately eight years. The general trend is consistent with that of the total hospital population, but the physically debilitated patients are older and their length of hospitalization less, probably because of a high mortality rate. The hypothesis that there is higher mortality among the physically debilitated, especially among males, is supported by their older age at first admission, and their very short length of hospitalization. If the physically debilitated were included, the improvement shown by patients after 20 years of hospitalization would be even more marked because of the lower behavior rating of physically debilitated patients and the shorter length of their hospitalization.

Age at first admission and length of hospitalization are inversely related. The relationship of present age to these two items should also be considered in interpreting census data. For example, the relation of present age to behavior rating is undoubtedly influenced by both the age at first admission and the length of hospitalization. Though present age may be the same, the patient who was the younger at first admission will tend to have the longer hospitalization and the lower behavior rating.

TABLE 16

BEHAVIOR RATINGS IN RELATION TO RELIGION

Religion	*N*	*M*
Protestant	1,008	3.07
Catholic	404	3.02
Other	26	3.00
No Religion	144	2.96
Total	1,582	

Behavior Ratings in Relation to Religion

There is no relationship between religious affiliation and mean behavior ratings. Patients who belong to minor religions or who have no religion do not differ markedly from those who belong to one of the major religious sects. In the normal population members of minority sects and those who profess no religion are frequently considered to be maladjusted.

Physically debilitated patients have essentially the same proportion of religious faiths as the nondebilitated population.

Behavior Ratings in Relation to Marital Status

The lower rating of widowed patients may reflect their advanced age. Single patients are lower in behavior rating than those who have been married or divorced. Divorced patients have

TABLE 17

BEHAVIOR RATINGS IN RELATION TO MARITAL STATUS

Status	Nondebilitated ($N = 1,638$)		Debilitated ($N = 294$)		Census II Patient Sample (corrected for age) ($N = 291$)	
	%	*M*	%	*M*	%	*M*
Single	57.4	2.98	43.9	2.27	69.8	2.98
Married	29.7	3.11	28.2	2.41	23.0	3.22
Widowed	8.2	2.98	23.8	2.47	2.4	2.77
Divorced	3.7	3.53	3.1	2.92	3.8	3.25
Separated	.4	3.36	.3	4.40	1.0	3.40
Undet.	.6		.7			

a much higher behavioral average than any other group. This active attempt at adjustment may differentiate them from the single individual. Since the marital status used in the census is almost always the one given at the time of admission, those married patients divorced after a five-year hospitalization (an interval required by Minnesota law) are usually counted as married.

The age-corrected sample of the hospital shown in Table 17 also indicates that single and widowed patients have the lowest behavioral average of any of the marital groups. All of the widowed patients in the sample are 65 years of age or over. The debilitated patients are not listed separately because of the small *N*. Their ratings followed the same general trend as the total sample.

Both single and widowed patients are consistently rated lower than the other groups. Proportionately fewer single patients were discharged between censuses.

Behavior Ratings in Relation to Education

The first two columns of Table 18 are uncorrected data from Census I. To some extent the behavior ratings reflect the fact that older patients have a poorer education. The improvement in rating with an increase in educational level is very consistent and the phenomenon of increasing age does not adequately explain the relationship. Those patients who have very little education are more severely maladjusted than those who have a great deal.

TABLE 18

BEHAVIOR RATINGS IN RELATION TO EDUCATIONAL LEVEL

Ed. Level	Census I ($N = 1,468$)		Census II Patient Sample (corrected for age) ($N = 291$)	
	%	M	%	M
0–4 grade	15.0	2.90	18.4	2.92
5–7 grade	20.7	2.99	24.2	2.72
8th grade	41.3	3.03	28.7	3.10
9–12 grade	16.0	3.09	22.8	3.35
Any special education	7.0	3.20	5.9	3.28

The age-corrected sample of the hospital population in Table 18 indicates the same trend—more highly educated patients have higher behavior ratings. The group with 5 to 7 years of education has the lowest average behavior rating. Ten patients in the specialized education category have attended college and their behavioral average is the highest of the groups (mean = 3.52). Older patients in the groups zero to 4 and 5 to 7 years are at or above their group averages.

Physically debilitated patients show essentially similar relationships between education and behavior rating.

Behavior Ratings in Relation to Patient's Sex

Table 19 excludes the physically debilitated cases on the first hospital census. When debilitated cases are excluded, males maintain their behavioral superiority over females. Male and female debilitated groups have equal averages.

TABLE 19

BEHAVIOR RATINGS IN RELATION TO SEX

Sex	Nondebilitated		Debilitated	
	N	*M*	*N*	*M*
Male	848	3.11	150	2.39
Female	790	2.95	144	2.38
Total	1,638	3.04	294	2.38

TABLE 20

BEHAVIOR RATINGS IN RELATION TO DIAGNOSIS

Code	Diagnosis	Male		Female		Total					
		Census I (N=998)	Census II (N=991)	Census I (N=934)	Census II (N=934)	Census I[a] ex. p.d. (N=1,603)	Census I (N=1,932)	Census II (N=1,925)	Perm. pop. (N=1,481)	Adm. betw. cens. (N=444)	Disch. betw. cens. (N=211)
000	Undiagnosed										
	N	11	—	13	—	21	24	—	—	—	1
	Mean	3.79	—	3.05	—	3.46	3.40	—	—	—	—
01	Psy. with syph. meningo-enceph.										
	N	19	15	19	13	30	38	28	25	3	1
	Mean	2.87	2.74	2.87	2.76	3.01	2.87	2.75	2.76	—	—
05	Psy. due to alcohol										
	N	22	8	5	1	25	27	9	6	3	5
	Mean	3.37	3.73	2.85	—	3.22	3.28	3.52	3.25	—	4.25
08	Psy. with cerebral arteriosc.										
	N	65	86	31	37	67	96	123	76	47	12
	Mean	2.86	2.99	2.90	2.77	2.99	2.87	2.93	2.94	2.91	3.63
10	Psy. due to convul. disorder (epil.)										
	N	17	16	15	19	28	32	35	26	9	5
	Mean	3.18	3.17	2.98	3.10	3.35	3.13	3.14	3.06	3.30	3.60
11	Senile psychoses										
	N	115	92	97	114	136	212	206	100	106	14
	Mean	2.51	2.68	2.53	2.31	2.74	2.52	2.48	2.59	2.48	3.52
	111 Simple deterior.										
	N	68	59	46	77	61	114	136	62	74	3
	Mean	2.37	2.39	2.17	2.18	2.48	2.29	2.27	2.44	2.32	—
	115 Paranoid type										
	N	18	16	26	23	28	44	39	22	17	6
	Mean	2.81	3.15	3.07	2.72	3.07	2.97	2.92	2.88	2.98	4.12

[a] Excludes physically debilitated patients.

(Continued on page 20)

TABLE 20—(*continued*)

Code	Diagnosis	Male		Female		Total					
		Census I ($N=998$)	Census II ($N=991$)	Census I ($N=934$)	Census II ($N=934$)	Census I[a] ex. p.d. ($N=1,603$)	Census I ($N=1,932$)	Census II ($N=1,925$)	Perm. pop. ($N=1,481$)	Adm. betw. cens. ($N=444$)	Disch. betw. cens. ($N=211$)
12	Involutional psychoses										
	N	22	15	43	46	59	65	61	36	25	23
	Mean	3.82	3.73	3.10	3.23	3.41	3.34	3.35	2.98	3.90	3.96
	121 Melancholia										
	N	14	8	18	22	29	32	30	16	14	17
	Mean	4.20	4.13	3.31	3.22	3.76	3.70	3.46	2.91	4.09	4.02
	122 Paranoid type										
	N	7	6	24	21	28	31	27	20	7	5
	Mean	3.34	3.48	2.98	3.15	3.14	3.06	3.22	3.03	3.76	4.17
15	Psy. due to unknown or hereditary assoc. with organic change										
	N	13	13	3	7	—	16	20	12	8	3
	Mean	2.21	2.25	—	2.49	—	2.26	2.33	1.93	2.48	—
16	Psychoneuroses										
	N	17	19	26	11	37	43	30	16	14	13
	Mean	3.38	4.04	4.01	4.18	3.85	3.76	4.09	3.67	4.48	4.31
17	Manic-depressive psy.										
	N	43	44	84	83	112	127	127	105	22	18
	Mean	3.41	3.66	3.09	3.12	3.28	3.20	3.23	3.05	3.98	3.91
	171 Manic type										
	N	12	19	26	39	31	38	58	47	11	4
	Mean	3.63	3.52	3.32	3.01	3.56	3.42	3.18	3.01	3.65	—
	172 Depressed type										
	N	17	18	32	31	46	49	49	40	9	8
	Mean	3.27	4.01	3.03	3.24	3.14	3.11	3.32	3.10	4.31	3.77
	174 Mixed type										
	N	11	6	16	8	26	27	14	12	2	4
	Mean	3.40	3.02	3.08	3.43	3.13	3.21	3.25	3.07	—	—

TABLE 20—(*continued*)

Code	Diagnosis	Male		Female		Total					
		Census I ($N=998$)	Census II ($N=991$)	Census I ($N=934$)	Census II ($N=934$)	Census I[a] ex. p.d. ($N=1,603$)	Census I ($N=1,932$)	Census II ($N=1,925$)	Perm. pop. ($N=1,481$)	Adm. betw. cens. ($N=444$)	Disch. betw. cens. ($N=211$)
18	**Schizophrenia**										
	N	498	528	470	498	896	968	1,026	889	137	74
	Mean	2.98	3.00	2.80	2.83	2.94	2.89	2.92	2.82	3.60	3.82
	180 Unclassified										
	N	17	2	35	1	47	52	3	3	—	2
	Mean	3.26	—	2.92	—	3.01	3.03	—	—	—	—
	181 Simple type										
	N	96	102	59	63	144	155	165	140	25	17
	Mean	2.88	2.91	2.97	2.77	2.93	2.91	2.86	2.77	3.33	3.91
	182 Hebephrenic type										
	N	124	111	133	134	239	257	245	236	9	4
	Mean	2.87	2.85	2.38	2.45	2.65	2.62	2.63	2.60	3.60	—
	183 Catatonic type										
	N	39	48	43	44	73	82	92	79	13	11
	Mean	2.53	2.44	2.63	2.84	2.68	2.58	2.63	2.50	3.34	3.41
	184 Paranoid type										
	N	217	250	190	234	378	407	484	418	66	36
	Mean	3.15	3.16	3.03	3.01	3.14	3.09	3.09	3.00	3.67	4.02
	185 Other types										
	N	5	15	10	22	15	15	37	13	24	4
	Mean	2.77	3.82	3.13	3.42	3.01	3.01	3.59	3.17	3.85	—
19	Paranoia and paranoid conditions										
	N	9	10	6	5	14	15	15	9	6	6
	Mean	4.20	3.71	2.65	3.57	3.73	3.58	3.66	3.28	4.00	4.68

(*Continued on page 22*)

TABLE 20—(*continued*)

Code	Diagnosis	Male		Female		Total					
		Census I ($N=998$)	Census II ($N=991$)	Census I ($N=934$)	Census II ($N=934$)	Census I[a] ex. p.d. ($N=1,603$)	Census I ($N=1,932$)	Census II ($N=1,925$)	Perm. pop. ($N=1,481$)	Adm. betw. cens. ($N=444$)	Disch. betw. cens. ($N=211$)
21	Psy. with mental def.										
	N	48	50	66	51	91	114	101	87	14	10
	Mean	2.80	2.88	2.75	2.89	2.90	2.77	2.89	2.88	2.96	3.53
23	Without mental disorder										
	N	74	73	39	27	97	113	100	73	27	17
	Mean	3.29	3.32	3.24	2.80	3.39	3.27	3.18	2.95	3.73	4.29
	230 Unclassified										
	N	21	4	2	—	19	23	4	4	—	1
	Mean	3.00	—	—	—	3.12	3.18	—	—	—	—
	232 Alcoholism										
	N	15	12	—	—	14	15	12	7	5	9
	Mean	4.29	4.12	—	—	4.29	4.29	4.12	3.91	4.41	4.32
	234 Mental deficiency										
	N	23	35	31	23	45	54	58	49	9	2
	Mean	2.91	2.92	3.24	2.69	3.14	3.10	2.83	2.80	3.08	—
	236 Psychopathic personality										
	N	9	9	4	1	12	13	10	5	5	2
	Mean	3.31	3.92	—	—	3.48	3.42	3.99	3.00	4.65	—

The age-corrected sample shows essentially similar characteristics.

Behavior Ratings in Relation to Diagnosis

This area presented a number of problems. The bias of the individual responsible for final diagnosis, the orientation of the institution, and the difficulty of sorting patients into Kraepelinian diagnostic categories are all responsible for some confusion in diagnosis. Older diagnoses may also be inaccurate, although most of the more obvious errors in diagnosis in this hospital have been changed. The major role of diagnosis in this institution is probably that of assistance in determining the treatment to be given a patient.

Table 20 is based upon the 1934 classification of mental disorder. Diagnoses in Census II have been fitted to this classification (4). Because of occasional marked differences between the male and female populations, characteristics of both are given. There are some differences in diagnoses between the two censuses. A gradual decline can be noted in the number of patients with a diagnosis of psychoses with syphilitic meningoencephalitis (general paresis). Behavior ratings of the patients with this diagnosis have also become lower. More adequate treatment methods (both preventive and arrestive) may account for the declining numbers.

The number of patients diagnosed as psychoses due to alcohol has also shown a very marked decline. Behavior rating of patients with this diagnosis has become higher. Admissions to the new state hospital for alcoholics changed the admission rate at this hospital. Perhaps earlier and better treatment of alcoholics prevents a number of these psychoses from developing.

Under the diagnostic heading "psychoses with cerebral arteriosclerosis," approximately two-thirds of the patients are male. The mean behavior rating approximates the average of the hospital population. In the diagnostic group "senile psychoses," the number of females increased markedly between Census I and Census II. This increase was especially noticeable in the diagnostic category "senile psychoses with simple deterioration." The very low average behavior rating of this diagnostic category suggests the possibility that the differential diagnosis between senile psychosis and psychosis with arteriosclerosis is made on the basis of age and lower behavioral level. (It should be noted that the death rate for the diagnosis "senile psychoses with simple deterioration" is much higher than that of the other groups.) The diagnosis of senile psychoses, paranoid type, has a behavior rating approximating the hospital average. Many more females are diagnosed as having involutional psychoses. The behavioral rating of patients with this diagnosis is considerably above that for the hospital population.

On Census II the senile and arteriosclerotic diagnostic categories show a definite increase in the absolute number of females. If females have a longer life span, and if the trend for increased senile admissions continues, one might anticipate that in the future there will be more female than male patients in the hospital.

Ages on Admission in Relation to Diagnoses

Mean ages of patients admitted between 1 June 1951 and 1 June 1952 in the categories "psychoses with cerebral arteriosclerosis," "senile psychoses," and "involutional psychoses" give further indication that these diagnostic differentiations may be made, at least partially, on the basis of age and behavior. The age differences between the three diagnostic categories are all significant. The mean age of male and female patients is approximately equal in each of the categories.

On the basis of some theories of the involutional period it would be anticipated that males diagnosed as involutionals would be about ten years older than females. Table 21 indicates that this is not the case. Further, males receive an involutional diagnosis infrequently. Apparently there is a strong male-female bias existing between the diagnostic categories "psychoses with

TABLE 21

AGES ON ADMISSION IN RELATION TO DIAGNOSES 1 JUNE 1951 THROUGH 31 MAY 1952

Code	Diagnosis	Male			Female		
		N[a]	Age	*SD*	*N*[a]	Age	*SD*
080	Psy. with cerebral arteriosc.	41	73.5	8.8	10	71.0	7.5
11	Senile psychoses	43	78.5	7.8	39	77.3	9.9
111	Simple deterioration	28	80.1	6.8	22	81.1	7.7
12	Involutional psychoses	20	53.4	6.5	41	51.6	6.6

[a] The age was unknown for one male and one female patient.

cerebral arteriosclerosis" and "involutional psychoses." Extremely old patients are diagnosed as senile psychoses with simple dementia; younger male patients are diagnosed as psychoses with cerebral arteriosclerosis; and younger female patients are diagnosed as involutional psychoses. In view of gross differences in age and behavioral level in the categories, the possibility that diagnosis is not entirely on a physiological basis should be considered.

The diagnostic group "psychoneuroses" (Table 20) has a total of 43 patients. The mean behavior rating of these patients is considerably above that of the hospital as a whole. The most common subgroup diagnoses were anxiety-hysteria, reactive depression, and anxiety state. The psychoneurotics that are received in a state hospital may be much more maladjusted than those commonly encountered in private practice, since it is usually assumed that a neurotic is capable of adjusting within the community.

The group diagnosed as manic-depressive psychoses has a preponderance of female patients. Males are rated much higher than females, and the group rating is considerably above the hospital average. The behavior rating of those diagnosed as manic has shown a reliable decrease between Census I and Census II.

A majority of the patient population is included under the diagnosis "schizophrenia." On Census I, 968 patients had this diagnosis and 889 of these were in the hospital at the time of Census II. Only 74 patients with this diagnosis were discharged. This rate is below that expected on a statistical basis. Many more males than females received the diagnosis "simple schizophrenia." It will be noticed that the behavior rating of this group approximates that of the hospital. Of the 257 patients who had a diagnosis of schizophrenia, hebephrenic type, only four were discharged. Even though the admission rate is low, the discharge figure seems small for the relatively large number of these patients. (It is possible that this diagnosis was given more frequently in the past and current figures are not comparable.) The behavior rating of the hebephrenic patients was below that of the hospital. A diagnosis of schizophrenia, catatonic type, was given to 82 patients. The behavior rating for this group is also considerably below that of the hospital. On the other hand, the number of patients discharged ($N = 11$) from this group was fairly high considering the low number of admissions. The impression that patients diagnosed as catatonic schizophrenia have a fair prognosis agrees with views of others. The majority of patients diagnosed "schizophrenia" were of the paranoid type (407 patients). In this hospital this diagnosis is used as somewhat of a "catch-all." If a patient does not fit too well into another schizophrenic classification he is usually diagnosed as a paranoid type. The average behavior rating of the paranoid schizophrenic is slightly higher than the hospital mean. There were a large number of patients in the undifferentiated classifications (e.g., such diagnoses as dementia praecox) and many of these were reclassified in the interval between censuses.

Many patients are diagnosed "psychoses with mental deficiency." The behavior rating of this group approximates the hospital average. The data indicate that a dual handicap of psychosis and mental deficiency does not prevent release of some patients to a noninstitutional environment.

In the category "without mental disorder," the patients diagnosed as mentally deficient form the largest subgroup. The behavior rating of this subgroup approximates the hospital mean. The alcoholics without mental disorder have the highest behavior rating in the hospital. A great many in this group were discharged. The psychopaths in this hospital also had a very high behavior rating. Approximately one-half of the individuals in this group were rediagnosed in the interval between censuses.

Most of the conclusions that can be reached from the diagnostic groups seem similar to those previously reported. If the data are adequate, some of the generally accepted concepts of regression (especially those regarding the diagnostic category "simple schizophrenia") need a reevaluation. Since hospitals differ in the diagnoses that are attached to various behavior patterns, one would expect differences in inter-hospital comparisons.

Behavior Ratings and Regression

An interesting speculative possibility concerns the relationship between the levels of behaviors rated on the behavioral census and those hypothesized in psychological theory. It has been widely held that latest learned behavior shows maximal regression and that earliest learned behavior shows minimal regression. Four psychologists and one psychiatrist from the University of Minnesota Hospital Psychiatric Unit were asked to rank independently the areas in the behavior rating scale in order, from earliest to latest learned behavior. (These clinicians did not know the results of the behavioral census.) The areas on the behavioral rating scale were also ranked from highest to lowest in terms of their mean values on Census I.

Agreements were computed by the rank-difference correlation method. The rankings of each clinician were compared with the rankings of each other clinician and also with the rankings determined from Census I. The ranks of each clinician were averaged for each individual area and a correlation was computed between these

TABLE 22

CORRELATIONS (RHO) BETWEEN FIVE CLINICIANS' RANKINGS OF BEHAVIOR AREAS AS TO EARLY VS. LATE LEARNING OF THE AREA; AND CORRELATION (RHO) BETWEEN CLINICIANS' RANKINGS AND AVERAGE BEHAVIOR RATING FOR EACH AREA IN CENSUS I

Clinician	Clinician					Average of 5 Clinicians
	I	II	III	IV	V	
I						
II	.69					
III	.63	.80				
IV	.58	.79	.76			
V	.61	.89	.90	.89		
Rank based on mean behavior rating of areas, Census I[a]	.67	.84	.68	.66	.69	.80

[a] High behavior ratings were ranked low, and low behavior ratings were ranked high, so as to provide a measure of regression and thus yield positive correlations with the clinicians' rank-order of the areas with respect to early vs. late learning of the behavior area.

average ranks and the ranks from the behavioral census. The correlation by this method was .80. The ranking of the areas on Census I from high to low is as follows: K, Toilet Behavior; I, Psychomotor Activity; J, Speech; B, Response to Meals; H, Attention to Dress and Person; E, Response to Doctors, Social Workers, Psychologists; D, Response to Psychiatric Aides and Nurses; F, Response to Electric or Insulin Therapy; G, Occupational and Recreational Therapy; C, Response to Other Patients; A, Work. The ranking of the areas by the clinicians, with respect to early vs. late learning of the behavior area, is: B, Response to Meals; K, Toilet Behavior; I, Psychomotor Activity; J, Speech; H, Attention to Dress and Person; C, Response to Other Patients; E, Response to Doctors, Social Workers, Psychologists; D, Response to Psychiatric Aides and Nurses; A, Work; G, Occupational and Recreational Therapy; F, Response to Electric or Insulin Therapy. Although the correlation is not high enough to be of predictive value, it indicates a definite relationship between psychological theory and the pattern of regression exhibited behaviorally.

Intercorrelation of Areas

The intercorrelations of the areas on the behavioral census were computed. With the exception of Area F, Attitude toward Insulin or Electric Therapy, the correlations of areas of the scale with the average (L) ranged from .69 to .87. The best predictor of the average rating was Area D, Response to Psychiatric Aides and Nurses. Area F showed relatively little correlation with other scales, the correlations ranging from .06 to .36. The other scales (excluding F) show intercorrelations of .42 to .78 with the most typical correlation being about .60. A factor analysis of this matrix found only one factor.

These correlations show a moderately high positive relationship to the general average and

TABLE 23

INTERCORRELATIONS OF AREAS ON THE L–M SCALE (FROM CENSUS I)

Area	A	B	C	D	E	F	G	H	I	J	K
A											
B	.66										
C	.67	.61									
D	.78	.69	.76								
E	.52	.51	.65	.63							
F	.26	.15	.32	.35	.36						
G	.63	.54	.67	.67	.51	.28					
H	.60	.72	.62	.66	.50	.13	.56				
I	.65	.65	.65	.68	.50	.25	.59	.65			
J	.54	.60	.64	.62	.56	.10	.52	.60	.62		
K	.54	.61	.44	.51	.43	.06	.42	.59	.55	.50	
L	.83	.81	.83	.87	.71	.34	.76	.81	.82	.78	.69

to each other. The fact that Response to Psychiatric Aides and Nurses (Area D) has the highest relationship to average behavior rating implies the operation of "halo" effect. Several factors should be considered in assessing the importance of this bias. The complexity of interpersonal relationships may mean that "less normal" patients are in fact lower in this area. "More normal" or "less normal" behavior may be a reflection of the patient's like or dislike for an aide (e.g., a feeding problem is more work for the aide).

The relatively modest intercorrelations of the areas (especially Area F) suggest that "halo" effect is probably minimal. In this connection it is often found, for example, that a patient will be a good worker and eat well, but will be poor at socializing with his peers. A wide variety of behavioral configurations can be observed.

Summary

Two evaluations were made of the Fergus Falls State Hospital population, one in 1951 ($N = 1{,}932$), and one in 1953 ($N = 1{,}925$). (The 1951 survey is referred to as Census I, and the 1953 survey as Census II.) Data were gathered on the following items: Diagnosis, Present Age, Sex, Marital Status, Religious Affiliation, Physically Debilitating Conditions, Length of Hospitalization, Education, and Age at First Admission; and on the areas of the L-M Fergus Falls Behavior Rating Scale. Some characteristics of the normal population as given in the U. S. Census figures for the State of Minnesota for 1950 were used as a basis for comparison. These items were studied in an attempt to describe behavioral characteristics of a state hospital population. A description of this type has not previously been attempted on a state hospital population. It is hoped that results of this census will be of value to scientists, hospital administrators, and ultimately the lay public.

Conclusions reached from the study follow:

1. The hospital population is older than the normal population. The aged in the hospital population are increasing. Hospital planning must take these facts into account.

2. Patients included in the census were most frequently admitted in early adult life (ages 20 to 40). However, a group of consecutive first admissions (from 1 June 1951 through 31 May 1952) had a mean admission age of 53.9 years. This figure agrees with a recent figure for *all* Minnesota state mental hospitals.

3. A majority of patients and a minority of normals are single. A correction for age greatly increases this difference.

4. There are more widowed people in the hospital than in the normal population. However, an age-corrected sample did not differ reliably from the normal population in this respect.

5. There probably is no difference between the hospital and normal populations with regard to religious preference.

6. There may be more physically debilitated people in the hospital than in the community. Advancing age may result in unfavorable personality changes as well as physical debilitation.

7. The mean length of hospitalization was 11.2 years. Therapeutic programming should take long-term patients into account. Females are hospitalized longer than males.

8. Even when an age-correction is made, hospital patients have less education than the normal population.

9. The hospital has a larger number of people diagnosed as feebleminded (8.6%) than would be found in a normal population on the basis of intelligence test distributions.

10. The percentages of the various diagnoses in this hospital agree substantially with those found by others. A majority of the patient population is diagnosed as schizophrenic.

11. A comparison between diagnoses

of admissions (for a one-year period) and the hospital-census population indicates that the two groups differ markedly in some categories. The admissions are more frequently diagnosed as psychoses with circulatory disturbances, senile psychoses, involutional psychoses, psychoneuroses, manic-depressive psychoses, and alcoholism. The hospital-census populations are more frequently diagnosed as psychoses due to unknown or hereditary causes but associated with organic change, schizophrenia, psychoses with mental deficiency, and certain categories without mental disorder excluding alcoholism.

12. In regard to the general level of work performed in the hospital, males are rated as being reliably better than females. The average male is capable of holding a regularly assigned job under supervision. The average female seems to do a little work, with much urging, under constant supervision. Perhaps males are more accustomed to working in an industrial setting.

13. Males and females are approximately equal in their behavior at meals. The average patient is usually able to eat by himself, using utensils properly. Very few patients require special attention at meals.

14. Males are reliably better than females in social contacts with peers. Many males exhibit some spontaneity in making contacts and in initiating play or work of a fairly high order. The average female patient may be somewhat friendly and may even have an occasional friend.

15. On Census I males and females respond equally well to psychiatric aides and nurses. On Census II the average male has shown improvement. He has become reliably better than the average female and is much more apt to make simple requests and to do things when asked.

16. Males are more responsive and friendly to non-nursing professional personnel than females.

17. Males are less antagonistic than females in the acceptance of the administration of electric or insulin therapy.

18. On Census I females tended to be better than males in response to occupational and recreational therapy. On Census II the male ratings show a statistically reliable improvement and become equal to the females. The average patient in occupational and recreational therapy will participate when asked and may occasionally show spontaneity.

19. Males show a tendency to be better than females in their attention to dress and person. The males improved at the time of Census II while the females were rated slightly lower (the difference between them became statistically reliable). The average patient has some interest in his appearance.

20. Males and females are approximately equal in level of psychomotor activity. Males showed a highly reliable increase in the level of their behavior on the second census. There are more female than male hyperactive wards in the hospital. The average patient seems to exhibit mainly purposeful behavior but has some erratic movements which are a result of the illness.

21. Males and females are approximately equal in speech, although females were somewhat higher on the first census. Between Census I and Census II the females showed a statistically reliable decrease in this area. This is the first reliable shift reported for females in this study. The average patient will speak in short, clear sentences if he has a request to make.

22. The males are reliably better than the females in their toilet behavior. This difference is of clinical significance. Both males and females improved on the second census. The total improvement was statistically reliable. The average behavior of the patient is normal except for being too neat or spending too much time at one thing and perhaps being rarely incontinent.

23. The males were reliably better than the females on both censuses on the average of all these areas of behavior. The authors feel that this difference is large enough to be of clinical importance. The males showed a reliable improvement between Census I and Census II. Females remained the same. Physically debilitated male and female patients have equal behavior averages.

24. Male admissions and discharges are higher in behavior rating than female admissions and discharges.

25. The consistent tendency for female patients to exhibit a lower level of behavior than male patients (and the results of a previous study in which females failed to hold their improvement on a *total-push* program) (1, 5) would indicate the need for more staff on the women's side of a state hospital. State hospital administrations might profitably reconsider the problems of the female patient with regard to such things as type of work, available clothing, and toilet space.

26. It is possible that an expanded therapeutic program was responsible for the improvement in behavior shown by the hospital population between Census I and Census II. Further censuses will be needed to substantiate this conclusion.

27. The average behavior rating of a group of student nurses ("normals") was approximately equal to that of the highest-level ward in the hospital. Some patients at this high behavioral level could leave the hospital if they were motivated to do so.

28. Patients who are physically debilitated have a lower behavior rating and are ten years older on the average than those who are not physically debilitated. The behavior rating of debilitated patients is fairly constant for all age groups.

29. Behavior of patients between the ages of 51 and 65 is slightly better than that of any other age group. Those patients over 86 show poorer behavior. Otherwise no definite relationship between age and behavior rating was discernible.

30. Up to age 65 patients show a trend toward higher behavior rating as age at first admission increases. Admissions after age 65 are poorer in terms of behavior. The physically debilitated population is ten years older than the *total* hospital population on age at first admission.

31. Up to twenty years of hospitalization, patients show a steady regression in behavior rating. Those who have been hospitalized between 26 and 45 years have a behavior rating higher than the average patient. Inclusion of physically debilitated patients would make the trend more pronounced. After 45 years of hospitalization there is a marked regression in behavioral rating, which may be due to aging. The hypothesis of continuing regression should be re-examined.

32. Type of religious affiliation (or lack thereof) does not seem to affect behavior rating.

33. Patients who have been divorced have the highest (most favorable) behavior rating; patients who have been married have the next highest; and those who are single tend to have the lowest rating. Single individuals may be more severely maladjusted than those who marry. As a group, physically debili-

tated patients are rated lower than the nondebilitated. Both groups have approximately the same relative ranking.

34. Behavior rating has a positive relationship to the number of years of school completed.

35. Because of the ambiguities that continually plague nosology, as well as the variations in biosocial environs, diagnoses present problems in intra- and inter-hospital comparison. More females than males receive manic-depressive diagnoses. The number of females has disproportionately increased between censuses in the categories of senile and involutional psychoses. If the trend toward older admissions continues, the longer life span of the female may eventually result in the presence of more female than male patients in the hospital. It is suggested that the differentiation between the categories of psychoses with cerebral arteriosclerosis, senile psychoses, and involutional psychoses is not entirely on a metabolic basis, but is, at least partially, a function of age, sex, and behavioral level.

36. The mean behavior ratings of simple schizophrenics approximate the average for the hospital. The average rating of hebephrenics was below the hospital mean. The catatonics' average was below the hospital mean but the rate of discharge was fairly high. Paranoid schizophrenics have an average rating slightly above the hospital mean.

37. Mentally deficient patients (with or without psychosis) are about average in behavior rating. Alcoholics, psychoneurotics, and psychopaths are very high in rated behavior.

38. A comparison of clinicians' rankings and the results of the behavioral census lends support to the hypothesis that regression in mental illness occurs from latest to earliest learned behavior.

39. The most typical intercorrelation of the ratings on the behavior areas was about .60 (all correlations were positive). Although behaviors tend to be positively interrelated, this finding supports the observation that patients may function at different levels in various areas. Factor analysis yielded only one factor.

APPENDIX

L-M Fergus Falls Behavior Rating Sheet (2, 3)

Name _____ Hospital Number _____ Age _____ Sex _____ Marital Status _____ Date _____

Diagnosis _____ Time on Present Ward _____ Ward _____ Religious Preference _____

A. Work.

(1)* Does no work—refuses—extremely negativistic.
(2) Does a little work with a lot of urging. Constant supervision is necessary.
(3) May have a regularly assigned job—and supervision may be necessary.
(4) Enthusiastic participation in all types of work—asks for work.
(5) Normal interest in work—i.e., interested in some kinds of work more than others (will do other kinds than main interest if called upon to do so).

(If works, at what, and how many hours a day?) _____

B. Response to Meals.

——Has to have special attention, as eats too much, or is spoon-fed or tube-fed.
——Eats by self, is sloppy—may need coaxing.
——Eats by self using knife, fork, and spoon properly—may show some finickyness.
——Passes and asks for things to be passed, but will not carry on table conversation.
——Would not stand out among normal people for eating habits.

C. Response to Other Patients.

——Stays all alone or may strike out at other patients.
——Will be with other patients only for a short while and with urging.
——Some signs of friendliness—speaks to patients—may have a friend.
——Some spontaneity in making contacts with other patients. May initiate play or work of a social, relatively high type, e.g., card games, washing dishes, etc.
——Helpfulness expressed toward other patients—or non-hostile recognition of their being mentally ill and making allowances.

(If stays alone or strikes, which one?)—— _____

D. Response to Psychiatric Aides and Nurses.

——Negativistic—hostile (can include striking)—doesn't do anything requested.
——Will do a few things if asked or pushed—shows no open hostility.
——Will do most things when asked—will ask for simple things—"I want my toothbrush."
——Extremely cooperative—will do anything when asked.
——Normal give-and-take relationship. Speaks spontaneously to nurses about things of not immediate importance, e.g., weather, baseball games, etc.

E. Response to Doctors, Social Workers, Psychologists.

——Hostile.
——Passively negativistic (would rather not have anything to do with them but will not resist).
——Will speak when spoken to.
——Seeks advice.
——Understands, accepts, and asks for therapy.

F. Response to Electric or Insulin Therapy.

——Hostile.
——Anxious, apprehensive, but not overly hostile.
——Passively accepts.
——Accepts positively—(may say, "I feel better after").
——Asks for, understands necessity for.

G. Occupational Therapy and Recreational Therapy (walks don't count).

——Does not participate at all—negativistic—hostile.
——Participates with urging for short periods.
——Participates when asked—some spontaneity.
——Shows interest—participates in all types wholeheartedly without discriminating very much between different types—looks forward to.
——Interested in many varied activities—normal selectivity (likes some kinds more than others).

(What is patient most interested in?)—— _____

* The number preceding each statement does not appear on the scale. Only a blank space is provided for a check mark. A clerk assigns the numerical value.

H. Attention to Dress and Person.

——Has to be dressed—needs special attention of one kind or another.
——Dresses self but is sloppy.
——Some interest in looks—too much lipstick, fairly neat.
——Cares about looks and dress—will ask for make-up or shaving equipment inconsistently (not an over-all balance).
——Normal (for culture)—would not stand out in a crowd.

I. Psychomotor Activity (not including going to the bathroom or meals).

——Stays in one place unless pushed—or hyperactive (e.g., seclusion necessary).
——Moves around a little (one chair to another) or, if hyperactive, the activity is not of a type making seclusion or other restrictions necessary.
——Some activity resulting from the influence of the illness (moves around because voices say to) and some purposeful behavior.
——Behavior mainly purposeful. Still moves around a little fast or a little slow.
——Normal activity—would not stand out among normal people.

(If hyperactive or stays in one place, which one?)

_____

J. Speech.

——Mute or speaks a lot but doesn't make sense.
——A few words that make sense ("yes" or "no").
——Speaks in short, clear sentences—"Can I have my toothbrush."
——Speaks normally except a little fast or slow.
——Speaks normally.

(If mute or senseless talk, which one?)

_____

K. Toilet Behavior.

——Untidy anytime during the day and/or more than twice a week nightly.
——Untidy once or twice a week nightly—brushes teeth and washes only when told to do so.
——Not untidy—toilet behavior somewhat sloppy—brushes teeth and washes once a day without being told.
——Toilet behavior normal except for being too neat, or spending too much time at one thing, or occasionally sloppy.
——Toilet behavior normal.

List below anything physically wrong with patient's arms or legs.

_____

_____

List below anything physically wrong with patient's hearing, sight, and speech organs.

_____

_____

List below any physical illness that patient has.

_____

_____

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